

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 04 MAY 2006

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Applicant's or agent's file reference 010458WO1	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416																								
International application No. PCT/US04/04082	International filing date (day/month/year) 12 February 2004 (12.02.2004)	Priority date (day/month/year) 26 March 2003 (26.03.2003)																									
International Patent Classification (IPC) or national classification and IPC IPC: G01N 21/00( 2006.01);G02B 21/00( 2006.01) USPC: 356/73,301,366,450;359/368																											
Applicant CARGILL, INCORPORATED																											
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p style="margin-left: 20px;">a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>																											
<p>4. This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 20%;">Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>				<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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Date of submission of the demand 22 October 2004 (22.10.2004)		Date of completion of this report 23 March 2006 (23.03.2006)																									
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201		Authorized officer <i>Rhonda Lee Reed</i> Gregory J Toatley, Jr. Telephone No. -																									

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/04082

## Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☒ the international application in the language in which it was filed.
- ☐ a translation of the international application into English, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4(a))
- ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☒ the international application as originally filed/furnished
- ☒ the description:  
pages 1-23 as originally filed/furnished  
pages\* NONE received by this Authority on \_\_\_\_\_  
pages\* NONE received by this Authority on \_\_\_\_\_
- ☒ the claims:  
pages 24 and 25 as originally filed/furnished  
pages\* NONE as amended (together with any statement) under Article 19  
pages\* NONE received by this Authority on \_\_\_\_\_  
pages\* NONE received by this Authority on \_\_\_\_\_
- ☐ the drawings:  
pages NONE as originally filed/furnished  
pages\* NONE received by this Authority on \_\_\_\_\_  
pages\* NONE received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs. \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs. \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/US04/04082**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims <u>2-3, 16-17, 28</u>	YES
	Claims <u>1, 4-15, 18-27</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-28</u>	NO
Industrial Applicability (IA)	Claims <u>1-28</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and Explanations (Rule 70.7)  
Please See Continuation Sheet

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

**V. 2. Citations and Explanations:**

Claims 1, 4-15, and 18-27 lack novelty under PCT Article 33(2) as being anticipated by Wack et al. (US Pubs 2002/0107650).

In regards to claim 1, Wack discloses an apparatus comprising an automated polarized light microscope (page 43, ¶ 310) combined with (page 14, ¶ 96) spectroscopic means (page 13, ¶ 89).

In regards to claim 4, the spectroscopic means are utilized in accordance with at least one mid-infrared spectroscopic technique (page 25, ¶ 198).

In regards to claim 5, the spectroscopic technique comprises using a microscope (figs. 3-7).

In regards to claim 6, the spectroscopic means are utilizes interferometric data acquisition (page 21, ¶ 169).

In regards to claim 7, the spectroscopic means are utilized in accordance with at least one near-infrared spectroscopic technique (page 25, ¶ 198).

In regards to claim 8, the spectroscopic technique comprises using a microscope (figs. 3-7).

In regards to claim 9, the spectroscopic means are utilized in accordance with at least one ultraviolet spectroscopic technique (page 25, ¶ 198).

In regards to claim 10, the spectroscopic technique comprises using a microscope (figs. 3-7).

In regards to claim 11, the spectroscopic means are utilized in accordance with at least one visible spectroscopic technique (page 25, ¶ 198).

In regards to claim 12, the spectroscopic technique comprises using a microscope (figs. 3-7).

In regards to claim 13, the spectroscopic means are utilized in accordance with at least one luminescence spectroscopic technique (page 46, ¶ 331).

## Supplemental Box

In regards to claim 14, the spectroscopic technique comprises using a microscope (figs. 3-7).

In regards to claim 15, Wack discloses an apparatus comprising an automated polarized light microscope (page 43, ¶ 310) combined with (page 14, ¶ 96) spectroscopic means having means for spectral imaging (page 79, ¶ 546).

In regards to claim 18, the spectroscopic means are utilized in accordance with at least one mid-infrared spectroscopic technique (page 25, ¶ 198).

In regards to claim 19, the spectroscopic technique comprises using a microscope (figs. 3-7).

In regards to claim 20, the spectroscopic means are utilized in accordance with at least one near-infrared spectroscopic technique (page 25, ¶ 198).

In regards to claim 21, the spectroscopic technique comprises using a microscope (figs. 3-7).

In regards to claim 22, the spectroscopic means are utilized in accordance with at least one ultraviolet spectroscopic technique (page 25, ¶ 198).

In regards to claim 23, the spectroscopic technique comprises using a microscope (figs. 3-7).

In regards to claim 24, the spectroscopic means are utilized in accordance with at least one visible spectroscopic technique (page 25, ¶ 198).

In regards to claim 25, the spectroscopic technique comprises using a microscope (figs. 3-7).

In regards to claim 26, the spectroscopic means are utilized in accordance with at least one luminescence spectroscopic technique (page 46, ¶ 331).

In regards to claim 27, the spectroscopic technique comprises using a microscope (figs. 3-7).

Claim 2-3, 16-17, and 28 lack an inventive step under PCT Article 33(3) as being obvious over Wack et al. (US Pubs 2002/0107650) in view of Some et al. (US Pubs 2002/0109110).

In regards to claims 2, 16, and 28, Wack does not disclose using Raman. However, it is disclosed that this apparatus is used for determining defects in a semiconductor device (page 16, ¶ 108 and page 17, ¶ 113).

Some discloses using a system combining two different measurement devices into one apparatus, in a similar manner to Wack's, for determining defects in a semiconductor device (page 2, ¶ 23). One of the measurement devices uses Raman so that contaminants in the semiconductor device can be identified (page 3, ¶ 27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a Raman spectroscopic technique in Wack's apparatus in order to identify contaminants in the semiconductor device as one of the measurements for determining defects.

In regards to claims 3, and 17, the spectroscopic technique comprises using a microscope (Wack figs. 3-7).